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ABSTRACT

This survey offers a brief description of the contribution of American scholars to contrastive research on Hungarian and English. The studies are divided into contrastive and experimental work. A study by John Lotz (1943) demonstrated the non-congruence of the number category in Hungarian noun declension with English. Later Lotz studies (1966 and 1969) compared the morphophonemics and semi-vowels of the two languages. A Nemser and Juhasz study (1964) is a two-way analysis for teaching either language to speakers of the other. Balint (1966) demonstrated that in English and Hungarian "many sentences occur in which time is indicated by other means than verbs and time expressions." A recent work by Orosz is an extensive contrastive study of the two grammars for pedagogical purposes. The earliest experimental contrastive research on Hungarian and English (1960) reported on perception of English stops by speakers of English, Hungarian and other languages. A 1961 study by Nemser assessed the validity of contrastive principles relating to the prediction and explication of interference. The 1964 Nemser and Juhasz volume presented a general theoretical discussion of language contact. A 1968 study by Madarasz concerned contrastive and error analysis in learning English and, particularly, Hungarian. (CHK)

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THE HUNGARIAN-ENGLISH
CONTRASTIVE LINGUISTICS PROJECT

WORKING PAPERS

3

WILLIAM NEMSER

Contrastive Research on Hungarian and English in the United States

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE HUNGARIAN-ENGLISH CONTRASTIVE LINGUISTICS PROJECT

Working Papers

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The Hungarian-English Contrastive Linguistics Project is jointly administered by the Linguistics Institute of the Hungarian Academy of Sciences and the Center for Applied Linguistics of Washington, D. C. The Project is jointly supported by the Ford Foundation and the Hungarian Academy of Sciences.

The major research objective of the Project is the systematic large-scale investigation of differences and similarities between the Hungarian and English languages with implications for the acquisition of English by Hungarians and the acquisition of Hungarian by speakers of English.

The Project publication, *Working Papers*, makes available research results, theoretical studies, progress reports, sample pedagogical materials and other materials relevant to Project objectives.

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0. *Introduction*

0.1 A comparison of entries in bibliographies on contrastive linguistics, including the comprehensive Hammer-Rice bibliography (1965) published by the Center for Applied Linguistics and the supplementary Thiem bibliography (1969) in the journal of the Projekt für angewandte kontrastive Sprachwissenschaft (PAKS) of the University of Stuttgart, suggests that contrastive coverage of Hungarian and English in the United States equals that of English and any other language with the exception only of the „world languages" Spanish, German and French. These studies of English and Hungarian vary greatly in scope, from brief comments to book-length monographs. However, in its totality, this research, besides providing unusually detailed information on the nature and implications of structural differences and similarities between Hungarian and English, offers results with apparent relevance for the field of contrastive linguistics as a whole, for the more inclusive field of foreign language acquisition, and perhaps even for general linguistic theory.

Until the recent advent of the Yugoslav Serbo-Croatian–English Contrastive Project (Filipović 1968) and the Romanian-English Contrastive Analysis Project (Slama-Cazacu, Golopenţia-Eretescu and Chiţoran 1971; Nemser 1970), no language not normally serving as a medium of worldwide communication had received attention in English contrastive studies comparable to that accorded Hungarian. One explanation was the support provided for such research by the United States Office of Education within the framework of the Uralic and Altaic Program of the American Council of Learned Societies, directed by John Lotz, during the period 1959–1965 (Lotz 1966). Such research has also been stimulated by official interest in Hungary both in the teaching of English, and in the teaching of Hungarian abroad. The latter concern has been recently expressed in the activities of the Hungarian World Federation, which include dissemination among foreign specialists of publications on the Hungarian language, and on Hungarian literature and culture, and sponsorship of conferences on language teaching for teachers of Hungarian abroad. An equally significant factor was the special impetus imparted to Hungarian studies in the United States at a number of major academic institutions, particularly Columbia University and Indiana University, under the leadership of scholars, notably John Lotz (now

at the Center for Applied Linguistics), Thomas Sebeok and Robert Austerlitz, whose status within the field of general linguistics attracted numerous younger scholars into the more specialized area of Hungarian studies. Lotz himself has been an important contributor to the literature of Hungarian-English contrastive studies, as shall be documented below. It is further true that several of the other studies to be discussed (those of Nemser and Juhasz) were completed under Lotz's direction or with the benefit of his advice, while research on another (that of Orosz) was partially conducted at the Indiana University Research Center for Language Sciences, of which Sebeok is Chairman.

This survey will offer a brief description of the contribution of American scholars to contrastive research on Hungarian and English in the context of concurrent general developments in the field of contrastive linguistics, developments reflected in the research in question, but also, in some cases, anticipated by this research. One goal is to provide a view of the foundations upon which subsequent related research can build, with immediate reference, of course, to the recently inaugurated Hungarian-English Contrastive Project. In light of the fact that a number of the works discussed are not readily available, description of their contents in some detail appears warranted.

0.2 These studies can be conveniently divided into two types for purposes of the presentation: contrastive studies and experimental studies. The division reflects the logical classification of research in the field of contrastive linguistics as a whole into the complementary activities of *contrastive analysis* (alternatively differential description, dialinguistic analysis, parallel description, analytic confrontation, etc.) and *error analysis* (more properly, data analysis). The first is a deductive procedure which begins with a formulation (in accordance with a preferred model of language structure) of structural differences and similarities between the languages in question and then attempts on this basis to elucidate the process of acquisition of one of these languages by speakers of the other. (In many, perhaps most, contrastive analyses, including some discussed below, only the first of these two steps is overtly taken – that of formulating a structural comparison of the systems – while the consequences for language learning of the cited relationships between the systems must be inferred by the reader.) On the other hand, error analysis, an empirical procedure, operates in the reverse direction, seeking to relate the data of learner performance to linguistic characteristics of his base and target systems, thereby providing a measure of the behavioral relevance of various descriptive models and of contrastive principles themselves. Presumably the millenial phase in the evolution of the field would be the junction of these complementary approaches where analysis could begin indifferently with the structural characteristics of the languages in question or with the learning per-

formance. That is, contrastive analysis could presumably predict learning characteristics, insofar as they are determined by structural properties of the base and target systems, while, on the other hand, these relevant structural properties could presumably be reconstructed on the basis of learning characteristics.

Further progress toward this goal obviously presupposes a vastly extended knowledge of typological variation among languages as revealed by contrastive analysis. Another obvious precondition is further information on the influence of both linguistic and non-linguistic factors on the process of language acquisition. Linguistic factors not systematically taken into account at present by the principles and procedures of contrastive linguistics include idiolectical variations within the base system reflecting differences in age, sex, educational background, and so on, and analogous variations among the models of the target language to which learners are exposed. For example, characteristic of the English (E) of learners without extensive contact with native speakers is often, understandably, the prevalence of „bookish" lexical items and locutions (e.g. Hungarian English [HE][1] *whilst you have money; the guy is a rogue),* and of phonological distortions based on the E writing system (HE *Thomas* [θ] = [t], *orchestra* [č] = [k], *ancestor* [č] = [s], etc.). Other variables, at present unaccounted for, are the learner's aptitude, his learning history (i.e. the order of presentation of target language elements, type and quality of instruction or self-instruction, and so on), as well as his motivation and relevant aspects of his personality.[2]

The significance of another aspect of his learning history has become increasingly apparent: the learner's growing competence in the target language, like his competence in the base system, itself clearly influences the learning process, as seen, for example, in the over-generalization of rules: HE *spreaded* [past] (= *spread*), *more easier (= easier), describe me the story (= describe the story to me),* etc.

Obviously, to a large extent the further development of contrastive theory presupposes that of general linguistic theory. Even our knowledge of the phonetic bases of speech, an area long the subject of intensive study, remains defective, as illustrated, for example, by our ignorance of the acoustic and physiological nature of the tense-lax feature, one posited for numerous languages, among them English. Of particular relevance to contrastive studies are questions regarding the psychological content of such

[1] I.e. English as employed by Hungarian learners. All HE and English Hungarian (EH) examples cited in this paper are attested – invariably as types and usually literally – in the data of error analyses currently in progress within the framework of the Hungarian-English Contrastive Project.

[2] Regarding the significance of the last two factors, see Lambert et al. (1963).

concepts as „distinctive features", „transformation", „deep and surface structure", as well as the further specification of language universals, and the hypothesis of innate language competence. Contrastive linguistics can itself contribute to such progress. For example, it can provide tests for the relative predictive and explanatory power of current models of language structure, and by identifying the operant contrastive factors, it can contribute to the identification of other linguistic determinants of learning behavior.

Finally, continued evolution of the theoretical basis of contrastive linguistics appears to require the further integration of the procedures of contrastive analysis and data analysis. The typical contrastive analysis offers „parallel descriptions" (Fries's term is apt) of structural aspects of the two languages in contact in the learner, but often omits specific reference to the learning characteristics supposedly illuminated, in the form of documentation or even hypotheses; that is, it takes the form of a truncated syllogism, with the parallel descriptive statements representing the premises, but lacking the conclusion. The typical error analysis, on the other hand, provides only fragmentary coverage of a given contact situation and *ad hoc* explanations of the findings.[1] The advantages of integrating the procedures by routinely completing the syllogism with a conclusion in the form of a testable hypothesis regarding, for example, anticipated interference types, and then validating the hypothesis through data analysis, appear obvious. One long-range benefit should be the refinement of the principles – currently at a rudimentary stage of development – underlying both procedures.

The contribution of contrastive research conducted in the United States on Hungarian and English to the achievements and prospects of the field of contrastive linguistics is described below.

1. *Contrastive studies*

1.1 The first significant reference in American linguistic literature to contrasting aspects of English and Hungarian appeared in a study by John Lotz (1943), some years before publications by Fries (1945) and Haugen (1953, 1954a, 1956, 1958), Weinreich (1953, 1957) and Lado (1957) precipitated a sudden surge of activity in the field of contrastive linguistics. As part of a structural analysis of metrics (published a year earlier in Swedish), Lotz briefly demonstrated the non-congruence of the number category in Hungarian noun declension with the number category in English and other Indo-European languages. While in these languages the category is based on a singular/plural dichotomy *(coach, coaches)*, Hungarian instead distinguishes

[1] For representative examples of contrastive analysis and error analysis, see Overbey (n.d.).

between „a number defined by its oneness or its numeric attribute" (*kocsi* 'coach'; *tíz kocsi* 'ten coaches') and „muchness undefined" (*kocsi-k* 'coaches'), i.e. between singularity and quantified plurality on the one hand, and unquantified plurality on the other. Lotz was not concerned at that time with drawing inferences for language acquisition from this radical structural discrepancy between language systems of the two types. Insofar as an autonomous discipline may be said to have evolved, contrastive linguistics still largely confined itself to the exploration of typological diversity among languages, an interest exemplified most notably in the English studies of Vilem Mathesius (1936a, b). This farsighted Czech scholar anticipated later trends by also concerning himself with the implications of this diversity for foreign language acquisition – his volume *Nebojte se anglictiny!* [Don't be afraid of English] (Mathesius 1936a) is apparently the earliest full-scale constrastive study primarily pedagogic in its objectives. However, such concern was not to become general among „contrastivists" until the late 1940's and early 1950's and the appearance of the works by Fries, Haugen, Weinreich and Lado cited above. Nevertheless the significance for language learning of the differences described by Lotz between the number category in Hungarian and that in Indo-European languages, including English, can be attested by any teacher of English to Hungarians or Hungarian to English speakers. The categories are similar enough for learners in both directions to assume they are identical, and different enough for this identification to result in major interference.[1] Thus the situation provides examples *par excellence* of the operation of contrastive factors: HE abounds with nominal phrases like *two girl_, many letter_*, and *several month_*, from which the plural morpheme has been omitted, and EH, conversely, with corresponding phrases like *két leány-ok, sok level-ek*, and *néhány hónap-ok*, where it is mistakenly included.

1.2 Two other descriptive studies by Lotz, published over two decades later, reflect the broadening of the interests of contrastive research to include pedagogical concerns. The first (Lotz 1966) compares the obstruent clusters of English and Hungarian, i.e. sequences of consonants characterized by complete blockage of the air stream (stops), noisy turbulence at the point of maximal closure (fricatives), or both (affricates). In particular, such sequences are compared in the two languages from the point of view of their „morphophonemic genesis" during the operation of the inflectional systems

[1] The term „interference" was introduced in this context by Uriel Weinreich in reference to „those deviations from the norm of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact" (Weinreich 1953, p. 1).

in these languages. The examination shows radically differing morphophonological processes in the two languages. For two successive morphemes (the first typically a stem, the second a suffix), in Hungarian the direction of alternant selection is from the second to the first: the voicing of the final consonant of the first morpheme is determined by the voicing of the first phoneme of the second morpheme. That is, *regressive* assimilation occurs: *ház* /hāz/ 'house', *ház-ban* /hāz-ban 'in the house', but *ház-tól* /hās-tōl/ 'from the house'. In addition, the criterion for application of this rule of assimilation is *phonemic*, such accommodation in voicing occuring only where voicing is distinctive in the conditioning phoneme: *réz* (rēz) 'copper', *rész* /rēs/ 'part'; *réz-től*, *rész-től* /rēs-tōl/ 'from copper; from part'; *réz-ben*, *rész-ben* /rēz-ben/ 'in copper; in part'; however, *réz-nek* /rēz-nek/ 'to copper', but *rész-nek* /rēs-nek/ 'to part'. In English, on the other hand, the direction of selection and assimilation is *progressive*, and the criterion is *phonetic: plant-s* /plænt-s/, *bud-s* /bəd-z/, *tree-s* /triz/; but equally *blossom-s* /blasəm-z/, *flower-s* /flawr̥-z/, *hill-s* /hɪl-z/.

In addition to its typological interest, the comparison has important implications for the acquisition of each language by speakers of the other. The expectation, borne out by experience, is that a characteristic feature of HE would be the unvoicing of final obstruents in nouns preceding the plural suffix where, presumably for orthographic reasons, the latter is interpreted as voiceless (*dog-s* > HE [dɔk̲-s̲]), and the voicing of final obstruents in verb forms where the past tense inflection is interpreted as voiced for the same reasons (*ask-ed* > [æz̲g̲-d̲]). Moreover it appears that the domain of this voicing rule is even wider in Hungarian, extending in some cases to clusters formed in compounding: *réz-fán* [*fütyülőjét*] /rēs-fān/ 'damn it!', *lég-kalapács* /lēk-kalapāč/ 'compressed-air hammer', *zöld-színű* /zölt-sz̄in̄ű̄/ 'green-colored'; *ház-tető* /hās-tetō/ 'roof', *vas-gyár* /važ-d'ār/ 'iron-works', etc. Thus the frequent occurrence in HE of forms like [blæg̲-bɔrd] for *blackboard* and [bæg̲-grawnd] for *background* would be correctly anticipated. Conversely, English learners of Hungarian tend to resist alternation of the first morpheme in both stem-inflectional suffix sequences and compounds, thus producing aberrant forms like [hāz̲-tōl] for *ház-tól* and [vaš̲-d'ār] for *vas-gyár*, and overdifferentiating homophonous forms like *réz-től* and *rész-től*.[1]

1.3 The other recent contrastive study by Lotz „Comparison of glides (semi-vowels) in English and Hungarian" (Lotz 1969), contrasts the actualization in the two languages of sounds characterized by „transient glottal friction noise," and draws explicit inferences for language learning in both directions from cited differences and similarities. The comparison reveals

[1] Apparently the rule even extends to some clusters formed by word sequences within phrasal units: see 1:4 below.

that both Hungarian /h/ and /j/ vary more widely than their English counterparts both in their phonetic properties and their distributional configurations. Extension of the distributional range of /h/ to postvocalic position (*méh* 'bee; womb', *düh* 'anger', etc.)[1] and that of /j/ to certain postconsonantal contexts (as often occurs in imperative forms of the verb: *tépj* 'tear!', *lopj* 'steal!' *fogj* 'catch!') may be expected to pose problems for English learners of Hungarian, as will the production of the strongly frictional variants ([x] and [ç] respectively) which occur in these unfamiliar contexts. On the other hand, Hungarian learners of English should experience little difficulty with the counterpart English phonemes. The phonetic properties of allophones of the other glide treated, /w/, are similar in the two languages. However, the distributional range of the phoneme in English, and its textual and lexical frequency, are much greater, since in Hungarian its occurrence is confined to postvocalic position in a limited number of words of foreign origin (*Európa* 'Europe', *autó* 'auto, car', *augusztus* 'August' etc.). Thus English prevocalic variants of /w/ should prove troublesome for Hungarians – and confusion of /w/ and /v/ (as in *west* vs. *vest*, *in white* vs. *invite)* is indeed characteristic of HE. However, the Hungarian phoneme should be readily acquired by English speakers – a prediction also confirmed by classroom experience.

1.4 The volume, *A contrastive study of Hungarian and English phonology*, by William Nemser and Francis Juhasz (1964), in actuality comprises four more or less independent sections, only two of them devoted to contrastive analysis of the two languages. Other sections of the study, one concerned with general theoretical issues and the other reporting experimental investigations, are described later (2.2, 2.3).

The contrastive study is a two-way analysis planned for use in the teaching of either language to speakers of the other. The general format called for (a) independent descriptions of corresponding aspects of the two phonological systems, (b) contrastive statements relating these aspects, and (c) specific reference to the implications of the cited relationships between the two systems for learning in both directions where this information was provided by the teaching experience of the authors, one as a teacher of Hungarian to English speakers (Juhasz), and the other as a teacher of English to Hungarians (Nemser).

The authors make it clear that these „pedagogical implications", even in the form of hypotheses, often cannot be inferred on the basis of the contrastive analysis alone. An example cited is the tendency of English learners of Hungarian, in producing the rounded front vowels of Hungarian, which offer an unfamiliar feature combination, to substitute retroflection for

[1] Pronunciation of the /h/ in this position is, however, not universal in standard Hungarian.

labialization, and to underdifferentiate the aperture distinctions. Thus Hungarian *nő* /nō/ 'woman' often becomes [nɪ̯] in EH, and *tű* /tū/ 'needle' becomes [tɪ̯].

Along with paradigmatic relationships among the sequential phonemes of the two languages, compared within a distinctive feature framework indebted to earlier formulations by John Lotz, considerable attention is devoted to the combinatory options of these phonemes. The point is made that differences in the „stringency" of comparable phonotactic rules in the two languages are responsible for the fact that whereas Hungarian learners of English readily master such unfamiliar clusters as initial /spl/, as in *splash* and *split*, English learners of Hungarian encounter considerable difficulty with such final clusters as /mzd/, as in *nemzd* 'beget!', despite the fact that both /mz/ and /zd/ occur in English, while only /pl/ occurs in Hungarian. It is also pointed out that differences in the domains of phonotactic rules in the two languages can pose learning problems. Since in Hungarian voicing restrictions relate contiguous consonants not separated by the onset of a new intonation contour, while in English such relationships normally terminate at syllable boundaries, renditions of English phrases like *that's good* as [dɛ̯ʒ gud] and *this boy* as [dɪz̬boy] are frequent in Hungarian English.

Another discrepancy between the systems with interesting consequences for language learning in both directions is the fact that in Hungarian syllabic function is confined to vowels, while in American English it often extends to both liquids, to the apical nasal and sometimes to the labial nasal as well, as in *further* (fɚ̯ɹ̩), *bottle* (bát̬l̩), cotton (kát̬n̩), and, in rapid speech, *keep them* /kípm̩/. According to the authors, Hungarian learners of English utilize two options in reinterpreting these syllabic consonants. The first deprives the consonant of its syllabic function through the creation of a new post-vocalic cluster, sometimes one non-occurrent in Hungarian: English *little* /lɪ̯t̬l̩/ > HE [lit̬l̩]. The second option is the introduction of a vowel, to which the syllabic function is transferred, before the syllabic consonant. The selection of the vowel is apparently often influenced by English orthography or Hungarian rules of vowel harmony: E button /bát̬n̩/ > HE [bətɔ̯n̩][1]. English learners of Hungarian also utilize two options in reinterpreting Hungarian consonants in contexts where they would acquire syllabicity in English. The first preserves the stress pattern at the expense of the vowel preceding the consonant, with the syllabic function transferred to the consonant: H Péter /pēter/ 'Peter' > > EH [pétr̩], H *heten* /heten/ 'seven of them' > EH [hɛ̯t̬n̩], and even H *bokor* /bokor/ 'bush' > EH [bowkɪ̯]. The second option preserves the syllabic

[1] According to László Láng (private communication) a third solution sometimes utilized is the insertion of a vowel following the syllabic consonant, as when *Beatles* becomes [bítliz] in HE.

function of the vowel at the expense of the stress pattern, when the normally unstressed syllable containing the consonant in question is produced with primary or secondary stress: EH [pétér], [hétén], [bówkór].

Considerable attention is also devoted to the comparison of prosodic features. Among cited contrasts are the roles of word stress in the two languages: since its function is distinctive in English, where stress placement differentiates lexical items (*below* /bĭlṓ/ vs. *billow* /bĭ́lŏ/) but demarcative in Hungarian, where it indicates the onset of a lexical item, the underdifferentation of words like *íncrĕase* (noun) and *ĭncréase* (verb) by Hungarian learners of English would be anticipated. As regards „rhythm", English is described as „stress-timed", with the length of syllables a function of accentuation, while Hungarian is „syllable-timed", with syllable length relatively independent of accent placement. One uncited implication of this difference is the formidable difficulty encountered by English learners of Hungarian in preserving phonemic length distinctions in Hungarian words in which length and stress do not coincide. Thus the length distinctions in words like *főnök* /fönök/ 'chief, boss' are far more likely to be preserved in EH than those in words like *jövő* /jövő/ 'future'.

Chief differences between the role of intonation in the two languages include, most significantly, its more independent grammatical function in Hungarian. For example, statements are distinguished from total (yes/no) questions in English normally by both intonational and segmental features, but often in Hungarian by intonational characteristics alone. The domains of grammatically relevant intonation patterns are also stated to differ. In Hungarian, contours frequently extend over the entire sentence since intonation often plays in important constructional role as well in contributing information on the grammatical organization of the sentence. In English, however, the domain of relevant levels and contours is usually the terminal part of the sentence. Thus an English sentence like *You know what I tȏld hȉm?* ↑[1] is characterized by a continuing rise in pitch level beginning on the penultimate syllable. In the Hungarian translation equivalent, however, *Tudod, mit mondtam neki?* ↑, the contour extends over the entire sentence with a gradual rise beginning at the initial syllable. When these patterns are transposed by learners, the result in the case of EH is an utterance connoting „indecisiveness" since commitment on the grammatical role of intonation is so long postponed, while in the case of HE the connotation is „surprise". Finally there are marked phonetic differences between intonational patterns with similar functions in the two languages. In certain total questions in Hungarian, with a minimal domain of three syllables, a rise-fall pattern is

[1] Pitch levels are numbered from 1 at the lowest to 4 at the highest. The arrow represents the direction of the contour at termination.

used where a rising pattern would be used in analogous English sentences: *A szék kényelmes?*, but *Is the chair comfortable?* †

The work concludes with a comparison of the morphophonemic characteristics of the two languages, incorporating certain of Lotz's formulations described above (1.3). The authors refer to the greater generality of certain Hungarian rules which determine the phonetic shapes of morphemes regardless of their grammatical characteristics, while in English such rules must contain reference to grammatical categories. However, when the learner of Hungarian ignores these general rules in *producing* Hungarian utterances, the result is, generally, comprehensible if artificially „precise": e.g. the rendition of *rész-ben* 'in part', normally /rēz-ben/, as /rēs-ben/ (see 1.3 above). However, confusion can occur in the learner's *interpretation* of words and morphemes. On the contrary, the application of Hungarian morphophonemic rules in *producing* English sentences can result in confusion: e.g. the (usually momentary) interpretation of *coat button* as *code button*, or *back door* as *bag door*. Normal English utterances, while apparently over-precise, will be readily interpretable.

The volume has some historical interest as an early example of a bi-directional contrastive study. Additionally it is an atypical attempt to combine the procedures of contrastive analysis with those of data analysis, illustrating the operation of the contrastive factors cited by reference to observation. However, this attempt to establish a clear link between structural properties of the two languages and learning characteristics is often inhibited apparently both by gaps in our knowledge of these properties and by the vagueness of the principles underlying contrastive analysis. On what basis could one have predicted, for example, that English speakers would identify H /ū/ with E /ṛ/ rather than with E /u/ – a phoneme they frequently substitute for the phonetically similar French high front rounded vowel – or with E /i/? And why do certain unfamiliar English clusters, as noted above, offer little learning difficulty for Hungarians, while their Hungarian counterparts in terms of unfamiliarity, pose serious problems for English speakers?

Thus even the formulation of unambiguous hypotheses is often impossible. However, the scientific interest of the work would doubtless have been enhanced by such predictions as the analysis could yield, for confrontation with the data, as well as by more rigorous procedures of data collection, and by the classification of the data in accordance with the proficiency level of the learners, among other criteria cited above (0.2).

1.5 Andras Balint (1966) in a brief study sought to demonstrate that in both Hungarian and English „many sentences occur in which time is indicated by other means than verbs and time expressions". In sentences in which the complement is a noun or an „adjective cluster", Balint notes, time is overtly

indicated in English by the „carrier" *to be*, but by no such carrier in Hungarian:

George is a teacher.	vs.	*György tanár.*
George is very nervous.	vs.	*György nagyon ideges.*

Viewing such sentences in paradigmatic contexts including, on the one hand, sentences like *György tanár volt* 'George was a teacher' and, on the other, sentences like *György a könyvtárban van* 'George is in the library', might initially suggest the presence of a zero variant of the Hungarian carrier *van* in the initial sentences, with the meaning 'extended present'. However, the author argues, „time-indication", denoting 'momentary present', without a verb, carrier or time expression also occurs in both languages in sentences like:

Good morning!	and	*Jó reggelt!*
Ouch!	and	*Jaj!*
John!	and	*János!*

Such time-indication, he also feels, is present in sentences like *A roaring lion* as a response to the question, *What is the trademark of all Metro-Goldwyn-Mayer films?*

Balint's interesting thesis is endorsed by Robert Allen, author of a major study of the English verb (Allen 1966).

In designating differences in the distribution of the copulas (or „carriers") in the two languages, Balint indicates an important structural dissimilarity, one with demonstrable implications for language acquisition in both directions. HE abounds with sentences like *Palestrina not popular*, from which the copula has been mistakenly omitted. Similarly, in EH one finds numerous examples of the over-use of the coupla, as in *Éhes és fáradt van* 'He is hungry and tired', and even, through hypercorrection, of its under-use: *Az állatkert nem nagyon messze* (= nincs) 'The zoo is not very far'. However, the postulation of covert „time-indication" does raise questions. Some readers might feel, for example, that he confuses present stimulus *(Ouch!)* with present reference *(is)*, or semantics and pragmatics, and ask whether he would also argue that *a roaring lion* can indicate future time *(What will be the trademark...?)*, past time *(What was...?)*, to say nothing of perfective aspect *(What has been...?)*, and so on.

1.6 The most recent and extensive of the descriptive studies, a work complementary in its coverage to the Nemser-Juhasz volume, is Robert A. Orosz's *Contrastive analysis of English and Hungarian grammatical structure* (n.d.).

Like the earlier volume it is a two-way study for use both in the teaching of English to Hungarians and Hungarian to English speakers.

In objectives, scope and methodological orientation it falls within the tradition of the *Contrastive Structure Series*, which had appeared during the middle 1960's in the United States, a set of studies contrasting the phonological and grammatical structures of English with those of German (Moulton 1962; Kufner 1962), Spanish (Stockwell and Bowen 1965; Stockwell, Bowen and Martin 1965), Italian (Agard and DiPietro 1965a, b), Russian (Gage 1962, 1963) and French (Lampach and Martinet 1963; Lampach n.d.). This hallmark research effort in the field of contrastive linguistics, in which leading specialists participated, was coordinated by Charles A. Ferguson, who also edited the publications. In offering „the case for contrastive grammars" in the preface to his own volume, Orosz quotes Ferguson to the effect that contrastive research provides „an excellent basis for the preparation of instructional materials, the planning of courses, and the development of actual classroom techniques" (Moulton 1962, p.V). Moreover Orosz believes that advanced learners can profit directly from the research results through „having had their attention directed to [their] structural faults" (p. 1). He states, however, that the volume was not written for self-instruction by elementary students of English or Hungarian since morpheme-by-morpheme glosses have been omitted, and the number of illustrative examples kept to a minimum. (Actually, grammatical points raised are, in general, abundantly illustrated.) Further justification for contrastive research is the possible interest of „juxtaposed" descriptions of two languages, for example „in the search for language universals" (p. 1). Finally, Orosz (p. 1) expresses his concurrence with Stockwell's somewhat obscure view that contrastive studies are „viable objectives for their own sake" (Stockwell 1968, p. 25).

Orosz defines his descriptive approach as basically „taxonomic" (i. e. structuralist), with occasional deviations into „informal" generative-transformationalism. It might be added that his formulations employ a similarly eclectic blend of formal and semantic criteria. As Orosz (p. 49) states, regarding a major topic, „a purely structural definition of the grammatical category of definiteness is...doomed to failure".

As in the Nemser-Juhasz volume, English is represented by American English. Speaking of British English, Orosz expresses his regret that the unavailability of informants precluded reference to „interesting aspects of that variety of English" (p. 3).

The selection of topics was based on personal observation of learning in both directions, which presumably established their importance as learning problems. Primary attention is accorded syntax over morphology, a significant decision in light of the major grammatical role of inflection in Hungarian, and the productivity of derivational processes.

The work is divided into four major sections, each further subdivided into chapters. The first section is „Article usage". The second, „The category of definiteness", again treats the definite article, and also pronouns, proper nouns, possessive constructions and noun clauses. The third section, „Morpho-syntax", deals with sentence word order, interrogative and negative sentences, and verbal phrases. In the final section, „Grammatical-semantic notions". tense, aspect and number are discussed.

As a source of pedagogically relevant contrastive information, the work certainly compares favorably in scope and presentation with the grammatical volumes, on which it is generally modelled, in the *Contrastive Structure Series.* In fact, it is more comprehensive than either the Italian or the German volume and is unlikely to be criticized as over-technical by its ostensible audience, as was the Spanish volume.

Orosz's study offers a broad and solid basis for future contrastive research on English and Hungarian. Since its scope and its objectives are, however, necessarily limited, one might usefully ask what lines of further research are suggested by these limitations.

While the study is bi-directional, nevertheless the predominant direction is clearly toward Hungarian. It is questionable whether the concept (or „category") of definiteness would have suggested itself as an organizing motif in a comparison between English and a language in which its manifestations are less pervasive than in Hungarian. This orientation appears, too, in a chapter heading like „The *-ik* pronouns and their English equivalents". English learners of Hungarian, including this writer, are grateful for the comprehensive and lucid treatment (indebted to research by László Dezső [1965]) of Hungarian word order. They are painfully aware that, despite the highly inflected nature of Hungarian, the notion that it has „free" word order is a pernicious myth, and that the word-order rules constitute a very stubborn learning problem. However, no corresponding attention is given English word order. Even if one grants that English word order rules are simpler and more readily mastered, the fact that they nevertheless pose a learning problem is attested by the numerousness of HE constructions like: *Now came three buses, Don't like the people (=People don't like him), When I came by train home, You left here something, Bring down me a bottle,* and so on.

The title of the work is perhaps over-comprehensive. (Pluralizing „structure" would have helped to bring it into alignment with the contents.) In actuality, two-thirds of the work deals directly or indirectly with the problem of definiteness (Parts One and Two). The second section, „The category of definiteness", was conceived independently (as a doctoral dissertation). The result, when it was later incorporated into a contrastive study seeking some comprehensiveness, was both overlap and „underlap": to a

significant degree Part One, on articles, necessarily covers the same ground as Part Two, while certain chapters in Part Two – for example, that dealing with possessive constructions – scant aspects of the topic not directly relevant to definiteness.

As Orosz himself suggests, „Grammatical-semantic notions" is a partial misnomer for Part Four in the sense that both formal and notional criteria are employed throughout the earlier discussion of definiteness as well. An interesting question, incidentally, is raised when these criteria conflict – apparently the case with the personal pronouns *maga* and *ön* in formal usage. The two forms have second-person referents, but they apparently play third-person grammatical roles from both a morphological and a syntactic point of view. As Orosz shows, unlike the first- and second-person pronouns, they form their plurals by suffixation rather than suppletion: *én* 'I', *mi* 'we'; *te* 'you' (sg., fam.), *ti* 'you' (pl., fam.); but *maga, maguk* and *ön, önök*. Also like nouns, they are inflected in possessive contructions and co-occur with third-person verb forms. Moreover, they replace occupational titles (e.g. *tanár úr*, lit. 'Mr. Teacher') which, as direct objects, occur with definite conjugation verb forms; and so on. In this instance the conflict between structural and semantic criteria is resolved in favor of the former.

Numerous topics treated in the Orosz work warrant further investigation. (In some cases, such research is already in progress within the framework of the Hungarian-English Contrastive Project.) These include determination, despite the space devoted to consideration of articles. Other determiners like the English „non-independent" indefinite pronouns (Orosz's term) *all, every, each, some* and *any* are not discussed. The use of *much* and *many* is related to the countable-uncountable subcategorization of nouns and the singular-plural opposition among verbs, but the relationship of these forms to other determiners is not described (cf. *much more...* vs. *the much more...*, *many...* vs. *the many...*, etc.). Other such topics which could be further elaborated include gerund and infinitive complements, possessives, verbal auxiliaries, and intonation in its grammatical role (which is not adequately covered in either the Nemser-Juhasz or the Orosz volume).

Relevant topics treated only incidentally, or omitted, include the Hungarian case system and its English equivalents, Hungarian post-positions and English prepositions, impersonal constructions, as well as the Hungarian implicative *(-lak/-lek)* verbal suffix (expressing a singular first-person subject and a second-person object [Lotz 1962]) and the Hungarian imperative, both as learning problems for English speakers and as sources of interference for Hungarian learners of English.

Subsequent studies should also deal with the grammatically marginal but highly relevant topics of greetings and leavetakings. Another problem of sociolinguistic interest and practical significance is pronoun usage in Hungarian

and its correlation with other forms of address in both Hungarian and English. Orosz's demonstrably correct observation that the option afforded by the structure of Hungarian is often exploited to postpone or avoid decisions in pronoun selection and hence in the specification of interpersonal relationships – through the use of a non-committal „zero form of address" in which the third-person form of the verb is used with a zero subject and the definite conjugation with a zero object – stimulates interest in parallel phenomena in English.

Two other topics, falling outside the prescribed scope of most contrastive grammars to date, including the Orosz study, are semantic structure and the processes of word formation. That the first merits attention is obvious from the quantity and persistence of transfer phenomena including semantic extension, as in HE *What is the address of that film? (=title), They are the heaviest people! (=most difficult), They learn very hard (=study), My bag is easy (=light),* and EH *Mikor indul a mozi? (=kezdődik)* 'When does the movie start? '; loan translation (calquing), as in HE *He went to the other side of the horse (=He went to the other extreme)* <A ló másik oldalára esett; and even outright borrowing, as in HE *They started a lavina (=avalanche).*

Word-formation, including derivation and compounding, merits special attention in the case of Hungarian and English. This is true both because of the typological interest of differences between a synthetic and an analytic system *(köt, kötél, kötelez, kötelezvény* vs. *he binds, rope, to oblig*[illegible] and *promissory note*[1] *)* and because these striking typological differences have important implications for language acquisition. For example, the productivity of derivational processes in Hungarian leads to the expectation of similar productivity in English, and the resultant creation in HE of such forms as the following (in some cases usefully filling lexical gaps): *cruelism (=cruelty), enviness (=envy), hungriness (=hunger), alienatedness (=alienation), ignoration* ('act of ignoring'), *destroyation (=destruction), deconcentrate (=dilute), inferiorate (=derogate)* and *dissatisfactioned (=dissatisfied).*

The usefulness of contrastive research, emphasized in Mathesius's writings, for illuminating the structural characteristics of the languages compared and thus contributing to our knowledge of typological variation and invariance, is illustrated by Orosz's extensive treatment of the phenomenon of definiteness in English and Hungarian. Despite the „all-pervading" nature of the category in English, little systematic attention has been devoted to it. Orosz cites inadequate earlier treatments by Bloomfield (1933), Smith (1964) and the very general discussion by Fillmore (1964). Turning to Hungarian, where its structural manifestations within the verbal system force it on the attention of investigators, Orosz finds that the criteria typically

[1] The example was supplied by John Lotz.

employed for definition of the category, as in the pedagogical grammar *Learn Hungarian* by Bánhidi, Jókay and Szabó (1965), closely resemble those used in the English studies. In both cases notional and structural criteria are utilized, including status as a proper noun or as a definite pronoun, and use with a possessive marker. However, serious deficiencies remain in the specification of the category in the two languages.

Orosz begins with a view of definiteness as a scalar rather than polar phenomenon ranging from (to use Smith's terms) „unique" at the top, through „specified", to „unspecified" at the bottom (Smith 1964, p. 38). However, Orosz inverts her analytic procedure, which uses determiners as the principal criterion, by instead investigating those conditions governing the selection of determiners. In the course of his analysis he finds in answers posed by the definition of the category in Hungarian simultaneously answers to definitional problems in English as well. It becomes clear, he feels, that „we are dealing with phenomena which are at least bilingually ‚universal'" (p. 52). Questions investigated include the use of the definite article in the two languages, the definition of the proper noun, the definite status of third-person pronouns and also of first- and second-person pronouns, the definiteness of object clauses, the definiteness of possessive constructions, and the formal marking of possessive contructions for definiteness. The results amply „justify" the research in terms of one criterion established by Orosz in the preface to his study by considerably clarifying the general notion of definiteness and its specific manifestations in Hungarian and English.

It will be recalled that the first justification for contrastive research cited by Orosz was its practical relevance. As stated earlier, the Orosz work easily meets the professional standards established by the *Contrastive Structure Series*. The present writer can personally attest to the usefulness of the volume as a reference source for learners. Orosz's uncommon practical experience has enabled him to identify areas of special learning difficulty in both directions. (One particularly regrets, in light of his experience, that „hints to the teacher" was a casualty of space limitations.) However, precisely because the study represents the current approach to contrastive research so competently, it raises questions about the approach itself. It is clear that effective application of the results of such research to the planning of pedagogic strategy often requires more specific information on learning characteristics – in terms of the incidence and nature of learning facilitation and inhibition – than can be inferred from the selection and treatment of the topics investigated. As Orosz himself points out, „quantitative measures" permitting the prediction of interference on the basis of structural characteristics of the languages in contact are lacking in a discipline still in its „infancy" (p. 2). The standard analytic procedure of „juxtaposing" descriptions of structural aspects of two languages, even where these aspects

are selected with the benefit of hindsight, yields information which, because of its generality, ambiguity and unreliability as an indicator of learning behavior, has by itself only limited pedagogic utility. It might be argued that the practical objective of such studies is primarily preventative, rather than diagnostic or therapeutic. In any case, however, the *nature* of the malady is clearly pertinent. Moreover one typical function of the Orosz work *is* therapeutic: to assist learners to „improve their control of the second language by getting rid of subconscious ‚foreignisms' more rapidly and effectively" (p. 1).

These practical limitations are readily illustrated. In numerous instances, comparison of structural aspects of Hungarian and English does indeed suggest the probable occurrence of specific interference types. For example, the different distributions of the definite article with proper nouns in the two languages leads to the anticipation of HE forms like *the Venus* (=ϕ) and *the Mars* (=ϕ), and of EH forms like *a Hága* (=ϕ) 'The Hague'. Similarly, differences in the generic use of the noun in the two languages suggest the likely occurrence in HE of forms like *I don't like the apple (=apples),* and EH forms like *Almákat veszek (=almát)* 'I buy apples'. Since the definite article alone sometimes indicates possession in English, HE sentences like *The dog is foaming at his mouth (=the),* and EH sentences like *A kutyának habzott a száj (=szája)* can also be anticipated. In light of rules for multiple negation in Hungarian, one could predict the occurrence of HE sentences like *I don't see no one (=anyone), There isn't nothing here (=anything),* and EH sentences like *Itt nincs valaki (=senki)* or *Itt van senki (=nincs)* 'There is no one here'. Attested occurrences of HE sentences like *I don't have ____ English books (=any)* would have been somewhat more difficult to predict, but they can at least be related to the same structural differences between the languages. Because these differences are still more pronounced in the case of possessive constructions, greater ingenuity is presupposed on the part of learners (and readers of the study) in predicting that because in Hungarian the second plural is omitted when plural possessor nouns occur in possessive constructions, as in *a tanárok háza* 'the teachers' house', EH noun phrases like *a tanárok házuk* will occur, since an English model is lacking. All such hypotheses, however unambiguous and reasonable, obviously require validation. That a significant proportion of such reasonable hypotheses are not, in fact, accurate is suggested by, for example, the apparent low incidence of such „predictable" HE error types, reflecting the functional similarities but distributional differences between English prepositions and Hungarian postpositions, as *the table under (=under the table), the house behind (=behind the house)* and so on. The hypothesis is borne out that, since in Hungarian, articles can appear in possessive constructions, like *a kalapom* 'my hat', from which they would be excluded in English, HE forms like

the my hat (=ϕ) and EH forms like *__kalapom* (=*a*) would frequently occur. However, the apparent *non*-occurrence of HE forms like *the hat my*, reflecting the order of the Hungarian elements as well, could not have been predicted.

Even the prediction of interference types is frequently problematic. That is, insufficient information is available for inferences regarding the associations learners will establish between structural elements of the two systems. One such case is where the base system offers a selection of models for the interpretation of a given target language element. In the following examples (utilizing Orosz's data), one Hungarian model is parallel in structure to the English element, thus presumably favoring correct interpretation and rapid acquisition, while the second is structurally dissimilar, and hence represents a possible source of interference:

a) *Szép fogai vannak.*	'She has beautiful teeth (pl.).'
...foga van.	(lit.) '...tooth (sg.).'
b) *Anna és Kati csinos.*	'Anna and Kate are pretty (sg.).'
...csinosak.	(lit.) '...pretties (pl.).'
c) *A fiú és a leány tanulók.*	'The boy and the girl are students (pl.).'
...tanuló.	(lit.) '...student (sg.).'
d) *Az apa elküldte a fiút vadászni.*	'The father sent the boy out to hunt (inf.).'
...hogy vadásszon.	(lit.) '...that he (should) hunt (clause).'

In other cases, only a choice among inhibiting models is available:

I expect him to go. (lit.) 'Én várom őt menni' = *Azt várom, hogy*
...that he will go. (lit.) '.... hogy ő fog menni' *elmenjen.*

Judging from Orosz's data, in the case of word-order permutations among such six-element Hungarian sentences, with special emphasis on the verb, like *Olvassa Péter a levelet gyorsan* 'Peter is in the process of reading the letter rapidly', no fewer than six models, all deviant from permissible English structures, are available.[1]

[1] However, two of these Hungarian sentences, *Olvassa Péter gyorsan a levelet*, and *Olvassa gyorsan Péter a levelet*, have been questioned by some native speakers of Hungarian except as imperative utterances.

Conversely, the selection of a replica form in the target language for a given base language element cannot always be predicted either. The selection of English *a lot of* as a replice for Hungarian *sok* 'much, many' is less likely to lead to interference than is the choice of *much* or *many*. In other cases all choices lead to interference, but of different types. This situation can be illustrated with the case of the Hungarian present tense *vis à vis* the various English verb forms with which it overlaps in function. In the HE sentences *I follow you in a minute (=will follow)* and *We are sneaking down there (=will sneak)*, the Hungarian present tense, expressing future time, is represented by the English simple present and present continuous forms respectively. Moreover, there are no contrastive grounds for excluding the possibility that English *future* forms *(will, going to)* might similarly represent the Hungarian present tense expressing „timelessness", as in *The earth will revolve around the sun (=revolves)*, or continuative aspect, as in *He is going to travel in Italy (=is travelling)*. Clearly the learner's selection among such replicas is determined by his learning history, i.e. by the order and manner in which the alternatives are presented to him. However, these variables are as yet unaccounted for within contrastive principles.

Finally there are instances where even the designation of possible models or replicas is difficult. This is the case, for example, with the opposition of the definite and indefinite verbal conjugations of Hungarian. Despite the pervasiveness of definiteness as a category in English, as convincingly demonstrated by Orosz, structural differences between the systems make specific predictions of transfer in either direction difficult to formulate. One apparent implication for Hungarians learning English is frequent interference in the form of the omission of the pronominal object after verbs in „definite" constructions: *Because you mentioned* _____ *(=it), Just a minute, I'm doing* _____ *(=it)*, and so on. The fact can be rationalized after the fact by reference to the „included" object of Hungarian verbs in the definite conjugation. However a counterprediction is at least as plausible – namely that the definite-indefinite distinction of Hungarian would be preserved in HE in the form of *retention* of the English object pronoun.

Another example of such indeterminacy is provided by the verb *szokni*, variously 'get used to', 'have the habit of', 'usually', etc.: *Szabad időmben sétálni szoktam* ‚I usually take a stroll in my free time'. This common but highly idiosyncratic element (which, in these senses, appears in past tense forms) is functionally so alien to semantically related English grammatical elements as to almost preclude the prediction of identifications between the systems. (In actuality, Orosz notes, English speakers tend to identify the form with English *used to*, and the same tendency is apparent among Hungarian learners of English who, incorporating an apparent confusion of *used to* and *to be used to*, frequently produce HE sentences like *When I go home I used*

to watch TV and *I used to read every evening* in which *used to* replaces such English adverbs as *generally* and *usually*.)

The last justification for contrastive research cited in the preface to the Orosz volume, that it is worth doing „for its own sake", is an apparent reference to its intrinsic scientific interest. A characteristic of contrastive linguistics at its present stage of development is the close interrelationship between its practical and theoretical objectives. This interrelationship is illustrated by the fact that answers to such questions as those raised above regarding the associations learners actually establish between their base and target language, answers presumably available through the systematic investigation of learning behavior within the framework provided by such contrastive studies as the Nemser-Juhasz and Orosz volumes, would both greatly augment the practical value of such works and promote the further development of the theoretical principles of the field. Thus in furnishing the basis for such inquiry, these works are indeed expressive of interest in the field „for its own sake".

However, further expression of this interest requires a broadening of coverage to include the investigation of structural variation between languages where such variation is not identified in advance as the source of interference in language learning. Only in this way can one approach a definition of contrastive relevance. Similarly, the scope of error analyses, traditionally illustrative investigations of the effects of the operation of contrastive factors, must be broadened to encompass an interest in data characteristics reflecting the influence of non-contrastive factors as well. These apparently include universal characteristics of both first and foreign language learners, and the learner's developing competence itself as a linguistic influence on subsequent learning. Such factors are most manifest when they operate in conflict with contrastive factors, as in such common HE sentence types as *She got some medicines* (=ϕ), *I suggest you to go* (= *that you go*), *I have no idea who is it* (=*it is*), and *What we have here?* (=*have we*), all of which illustrate the violation of Hungarian rules coinciding with rules in English. In short, further evolution of the theoretical principles of contrastive linguistics presupposes escape from the procedural circularity characteristic of research in the field.

2. *Experimental Studies*

2.1. The earliest experimental contrastive research on Hungarian and English was reported in „The perception of English stops by speakers of English, Spanish, Hungarian and Thai: a tape-cutting experiment" by Lotz, Abramson, Gerstman, Ingemann and Nemser (1960). The investigation suggests the

relevance of contrastive research for general linguistic theory. It was prompted by a long-debated problem in English phonological analysis: the status of the stop segments following /s/ in initial stop-sibilant clusters, as in *spill, still* and *skill,* segments bearing a phonetic resemblance to both the tense and the lax members of the corresponding labial (/p,b/), apical (/t,d/), and dorsal (/k,g/) stop pairs. Conflicting analyses have assigned these segments as variants to different members of these pairs, or have described them as „archiphonemes", a third class representing the „neutralization" of the opposition between these members in the context (#s__V). The investigation sought to ascertain how speakers of American English on the one hand and, on the other, speakers of various languages, including Hungarian, utilizing different distinctions among the homorganic stop sets, would interpret the English residual stops after the removal, by tape-cutting, of the preceding sibilant. Additionally the investigators were interested in the concomitant interpretation of the associated tense/lax pairs.

In the environment in question, English tense stops are normally aspirated and voiceless, while English lax stops are unaspirated and normally, but not always, voiced. The residual stops phonetically resemble English tense stops in their lack of voicing, English lax stops in their lack of aspiration, and are apparently characterized by an intermediate degree of tenseness.

Six monosyllabic English words containing sibilant-stop clusters before both front and back vowels were recorded by three native speakers of English and the sibilant portions removed: *(s)pill, (s)till, (s)kill, (s)pore, (s)tore, (s)core.* The other stimuli were the related stop pairs: *pill, bill, till, dill, kill, gill; pore, bore, tore, door;* and *core, gore.* The items were randomized. Informants recorded their responses with alphabetic symbols.

The responses of the thirty-five American subjects revealed a general identification of the residual stop segments with the English lax stops /b/, /d/, and /g/.

In the second part of the experiment, the same stimuli were presented to speakers of Hungarian, Puerto Rican Spanish and Thai. In the first two languages, the tense-lax opposition of English is replaced by one based on voicing, while Thai exhibits a three-way opposition among voiceless aspirated stops, voiceless unaspirated stops, and voiced stops.

Hungarian voiced and voiceless stops are phonetically lax and tense respectively, while English tense stops are voiceless and English lax stops most frequently voiced or partially voiced. Therefore, as regards the normal (non-residual) stops, the selection of an *in*correct symbol by a Hungarian-speaking subject unambiguously indicates misinterpretation of the tense/lax feature. However, since in most cases the features of tenseness and laxness are (redundantly) accompanied by the voicing features with which they are

associated in Hungarian, a *correct* response does not necessarily indicate correct interpretation. In the case of the residual stops, the choice of a „tense" symbol may reasonably be supposed to reflect the voicelessness of the test phoneme – on the model of Hungarian – while a „lax" symbol may indicate reaction to the lack of aspiration.

The test was administered to five Hungarian-speaking subjects with low to intermediate proficiency in English, and was readministered to one informant three times, to another twice, and to a third once, for a total of eleven sets of responses.

Errors in the interpretation of the normal tense stops occurred at a low average frequency of 0.02, but at a higher average frequency of 0.15 for the lax stops, where sporadic voicing may have played a role. There was a strong general tendency among Hungarian-speaking subjects – in contrast to native speakers of English – to interpret the residual stops as tense: the average comparative frequency of such responses was 0.71. However, the tendency diminished markedly with the dorsal stops: the residual stop in *(s)core* was interpreted as lax on almost two-thirds of the responses, and that in *(s)kill* on almost one-half.

The responses of the speakers of Puerto Rican Spanish to both normal and residual stop stimuli generally coincided with those of the Hungarian speakers. The Thai-speaking subjects established three groups among the test phonemes, reflecting the phonological structure of their language.

The results of the study indicate that for English speakers aspiration is apparently a stronger cue for tense stops in initial position than is lack of voicing. Theoretical issues are raised by these results in light of the presumably non-distinctive status of the contextually determined aspiration feature. The results also suggest that speakers of typologically disparate languages discover different hierarchical relationships among phonemic components. While in the interpretation of the residual stops by English speakers lack of aspiration was apparently the crucial cue, for Hungarians, as for speakers of Puerto Rican Spanish, voicelessness predominates. For Thai speakers *both* cues were critical. As regards the interpretation of the normal stops, however, reflections of the typological differences between English, utilizing the tense/lax opposition, and Hungarian (and the other languages) utilizing the voiced/voiceless opposition, are much less apparent, a finding which suggests the existance of unrecognized similarities between oppositions of the two types.[1]

2.2 A study by Nemser, conducted in 1961 and reported in various publications (revised version Nemser 1971a; 1961a, b; 1967; 1971b; Nemser and Juhasz 1964) was an attempt to assess the validity of contrastive principles

[1] See 2.2 below for further research results pertinent to this question.

relating to the prediction and explication of interference. Experimental conditions were designed to be optimally favorable to validation since the investigation concerned the phonological aspect of language – presumably the most rigidly structured linguistic level and that most intensively and comprehensively studied in both descriptive and contrastive research. Additionally, special effort was made to eliminate the influence of higher-order factors from the grammatical and lexical levels which, in actual communication, often obscure or curtail the operation of phonological factors. That is, the redundancies inherent in linguistic structure, and in the situational context of the speech event, obviously often enable speakers to infer the identity of linguistic forms without perceiving all of their phonological chracteristics.[1] In the case of learners, therefore, distortion in the perception or production of linguistic forms must often be ascribed not to differences in the phonological patterns of their base and target systems, but to erroneous inferences based on faulty knowledge of the grammatical and lexical rules of the target language. Thus, for example, the frequent rendition in HE of the English word *says* as [seyz] (= [sɛz]), is an example of morphophonemic rather than phonological interference, while the rendition of *two men* as [tu + mæn] (= [tu + mɛn]) and *two months* as [tu + mənθ] (=[tu + mənθs]) reflect the operation of phonological factors, grammatical factors, or both. One means employed in the study to isolate phonological factors was the use of nonsense syllables rather than meaningful words or utterances on most of the tests.

The theoretical concepts in question have never been articulated as a formal set of principles, doubtless because such a formulation was regarded as premature. Moreover an awareness that these assumptions require drastic revision has become increasingly apparent, partly as a result of research like that being described, but also because efforts to apply these concepts in language teaching have not met with the anticipated success. Nevertheless, as tacit hypotheses, they still underlie most research in the field since they are implicit in the methodological practices of error analysis and contrastive analysis. Explicit references to these assumptions are found, for example, in Franz Boas's frequently-quoted observation that even a trained field worker in linguistics „apperceives...unknown sounds by the means of the sounds of his own language" (Boas 1889, p. 51), N.S. Trubetzkoy's assertion that the sounds of the secondary system pass through a „phonological sieve" consisting of the primary system categories (Trubetzkoy 1939, pp. 47–50), and, more recently and explicitly, Robert Lado's statement that

[1] In Daniel Jones' view „the hearer pays attention to only a small proportion of the sounds uttered by the speaker and guesses the rest." (Jones 1949, p. 6) See the bibliography of Nemser 1971a, for other relevant literature.

> ... the speaker of one language listening to another does not actually hear the foreign language sound units – phonemes. He hears his own. Phonemic differences in the foreign language will be consistently missed by him if there is no similar phonemic difference in his native language. (Lado 1957, p. 11)

A reasonable attempt to reconstruct these assumptions, or principles, might be the following:

(1) Differences between the phonological structures of a learner's base and target languages will result in interference in the perception and production of the phonological units of the latter, i.e. in deviations from the norm.
(2) The interference results from the identification of target language elements with those of the base language.
(3) Patterns of identification, and hence interference patterns, are regular.
(4) Perceptual and productive interference patterns correspond.
(5) These patterns are predictable on the basis of a contrastive analysis of the base and target systems.

This predictive power, however, is qualified. According to Haugen (1958), predictions must be verified, and Weinreich (1957) includes among the determinants of phonic interference (a) extra-phonic factors, typically the presence of taboo forms in either language, (b) orthographic form, (c) extralinguistic sociocultural and individual factors and (d) „indefinable factors" perhaps analogous to those causing „performance errors" in native speech.

The assumptions are vague regarding the persistence of predicted interference patterns (that is, their resistance to correction) and the correlation between pattern occurrence and learning stage. No reference is made to earlier learning stages as a possible source of „intralingual" interference (see 0.1 and 1.6 above).

The study under discussion attempted to test the validity of the formulatable assumptions by reference to the perception and production of English stops, and the interdental fricatives (/θ/ and /ð/, as in *thank* and *that*, or *bath* and *bathe*), by native speakers of Hungarian with a limited knowledge of English. This limitation on the effects of prior learning in reducing the incidence of interference and in providing a source for intralingual interference again appears to favor validation of the assumptions.

A contrastive analysis of the stop systems of English and Hungarian reveals the following differences: (1) the Hungarian homorganic pairs are opposed through voicing, the English pairs through the tense/lax feature; (2) labial, apical and dorsal pairs occur in both languages, but the Hungarian system includes two palatal stops, /t'/ (*kutya* /kut'a/ 'dog') and /d'/ (*gyógyítani* /d'ōd'ītani/ 'to cure'), which are opposed to the other lingual stops through spread-tongue (coronal) articulation; (3) Hungarian voiceless stops are unaspirated, while English tense stops are aspirated initially, medially before a

stressed vowel, and sometimes finally, and this aspiration, while contextually determined, is apparently crucial in the interpretation of these stops (see 2.1 above); (4) Hungarian voiceless and voiced stops are redundantly tense and lax respectively; English tense stops are voiceless, but English lax stops are often partially or totally unvoiced, especially in final position.

The English interdentals (/θ, ð/) have no Hungarian counterparts sharing both their modal and local features. They share locus with the Hungarian apical stops (/t, d/), and friction *type* with the Hungarian labial fricatives (/f, v/), and both fricativity and locus with the Hungarian sibilants (/s, z/), with which, however, they contrast in friction type as low to high intensity and frequency.[1]

In sum, the problem in the interpretation of English stops by Hungarian speakers concerns the distinctive status of the tense/lax feature and the crucial role of aspiration in initial tense stops. Since in Hungarian the non-distinctive tense/lax feature is correlated with the voicing opposition, the problem is one of feature *function* not feature *generation*, and the frequent occurrence of „covert" interference is probable.[2] The interdentals combine the problem of tense/lax feature function with that of feature *distribution* since low-intensity friction and apicality do not co-occur in Hungarian.

Rules governing phoneme distribution are in general more restrictive for Hungarian stops than for English stops, with fewer cluster types occurring and shared clusters having lower textual and lexical frequencies. The interdentals, of course, pose a problem in *total* distribution. Overlap with the distributional ranges of the Hungarian apical stops, labial fricatives and sibilants do not favor general identification of either interdental with any member of these sets, but do sometimes favor identifications in various contexts.

The predictions yielded by the contrastive analysis follow: (1) the English tense stops will be regularly identified with their Hungarian voiceless counterparts (sometimes as instances of covert interference); (2) voiced allophones of English lax stops will be identified with the corresponding Hungarian voiced stops; but (3) *voiceless* allophones of English lax stops will often be identified with Hungarian *voiceless* stops; (4) interpretations of the English interdentals as labial fricatives, apical stops or groove sibilants are, in general, equally likely except in contexts where distributional rules favor one or another choice.

The contrastive analysis was based on a concept of phonological structure differing in certain respects from other current views. It was argued that the International Phonetic Association framework, since it posits no internal

[1] See Harris (1958) and Strevens (1960).

[2] See 2.2 above.

organization among phonological units, can furnish little information of contrastive value. On the other hand, structural formulations like those of Roman Jakobson (Jakobson, Fant and Halle 1952) and André Martinet (1956) ignore recent advances in phonetic analysis revealing marked perceptual differences between sibilant and non-sibilant friction types correlated with the acoustic differences noted above including the fact that the sibilants, unlike the non-sibilants, can be identified independently of context (Harris 1958).

A structural phonetic approach, as advocated by Haugen, would predict the identification of the English tense (voiceless) stops with their Hungarian voiceless (tense) counterparts. However, prediction regarding unvoiced allophones of English lax stops poses a problem since the two features of voicelessness and laxness suggest contrary solutions, and voiceless occurrences of the lax *interdentals* suggest no fewer than six interpretations: as H /d, t, z, s, v, f/.

Martinet's organization of phonological units, with labials, apicals, palatals, sibilants, affricates and velars constituting serially arranged orders, in general suggests the identification of the interdentals with either the labial fricatives or the apical stops rather than the sibilants since, between the „hole in the [H] pattern" opposite the English interdentals and the Hungarian sibilants, there is another lacuna, in the palatal order:

p/b	t/d	t'/d'	c/ʒ	č/ǯ	k/g
f/v	(θ/ð)	( )	s/z	š/ž	

Jakobson's binary framework unequivocally predicts identification between the English interdentals and the Hungarian sibilants since these pairs share three features: non-compactness (dominant back cavity), acuteness (medial constriction), and continuancy, and are opposed only redundantly as mellowness (simple impediment) to stridency (complex impediment).

The recent reformulation of the Jakobson framework by Noam Chomsky and Morris Halle (1968) differs in few relevant respects. The new „anterior" category (obstruction in front of the palatal-alveolar region) is here equatable with non-compact, and „coronal" (raised tongue front) is partially equatable with acute. However, the apical and palatal stops, grouped together as acute by Jakobson, are opposed by Chomsky and Halle as coronal (raised *front*) to non-coronal (raised *body*), while special affinities now unite the palatals and dorsals as both non-coronal and non-anterior.

Following administration of a battery of pilot tests, which confirmed the supposition that the Hungarian apical stops, sibilants and labial fricatives were the Hungarian phonemic categories most actively involved in the inter-

pretation of the English interdentals, and which established the practicality of the testing procedures, six full-scale tests measuring proficiency in perceiving, producing and imitating the test phonemes were administered. Oddball and transcription procedures were employed in the perception tests. (In the former type the informant attempts to identify the aberrant item among four stimuli: *tin, thin, tin, tin.*) To elicit productions of English stops, subjects were asked to repeat truncated nonsense syllables with the addition in initial or final position of the stop, or control phoneme, represented by a symbol on their scripts. Renditions of the interdentals were elicited through a retranslation technique. On a repetition test, nonsense syllables containing stops and interdentals served as models for imitation. The same test items (unrecognized) appeared in the „Hungarian-ear Test" in which subjects were asked to identify the English test phonemes with Hungarian phonemic categories, forcing the identification where necessary. Finally, the „spill-bill" test (see 2.1) was also administered.

As noted earlier, in order to inhibit the intrusion of higher-order interference, nonsense syllables were used wherever possible (the case on all but two tests). Contexts for test phonemes were chosen for their typicality, and the basic canonic form of test phoneme plus test context was elaborated only where the sequence as it stood violated English distributional rules, or where it was meaningful. Perception and imitation test items were recorded on magnetic tape by native speakers of American English.

The study was conceived as an in-depth examination of a restricted set of problems with a small group of subjects. The total test population was eleven Hungarian speakers; on most tests, four to six informants served as subjects.

In most general terms, with percentages rounded to the nearest ten and results for the two interdentals combined where possible, the test results showed that where misinterpretation of the interdentals occurred, these phonemes were:

(1) usually *perceived* as labial fricatives:

	t,d	s,z	f,v
%	10	10	80

(2) almost always *produced* as apical stops, and *never* as labial fricatives:

	t,d	s,z	f,v
%	90	10	0

The English *tense* interdental was:

(3) imitated as either a sibilant, fricative or stop in that order of preference:

	t	s	f
%	10	50	40

However, in the case of the *lax* interdental:

(4) imitative interpretations showed the reverse order of preference:

	d	z	v
%	50	10	40

A significant proportion of the productive and imitative responses were phoneme blends or sequences, often not identifiable with categories in either language: [s͡θ], [t͡θ], [fs], [tθ], [ts], [st], etc. *Perceptual* blends were apparently also frequent, as indicated, for example, by improvised transcriptional notations combining symbols in the notational system.

The interpretation of the stops was far more uniform. Members of the English homorganic pairs were almost invariably identified with the structurally corresponding Hungarian phonemes on all tests, in the case of the lax stops with total disregard of voicing characteristics. In the production of tense stops, under-aspiration was frequent; other deviations included apparent phonemicization of the spirant element of aspirated stops, and affrication. While on the „Hungarian-ear Test" results for the interdentals resembled those on the imitation test, the „error" rates for the stops (i.e. identification with the non-analogous Hungarian category) were actually lower. On perception and imitation tests, errors in the interpretation of stop *loci* never included identification with the Hungarian palatals.[1]

The test results seemed to imply serious shortcomings in the contrastive precepts evaluated, and even to raise questions relevant to general linguistic theory:

(1) Patterns of association established by learners between phonemic categories in the base and target systems were less stable and more complex than had been assumed.

(2) Contrastive theory, by suggesting that only base and target language categories are available to the learner, fails to account for the frequent utilization of intermediate categories identifiable with neither system.

[1] The results of the „spill-bill" test, incorporated in the findings of the study by Lotz et al. (1960), have already been reported (2.1 above).

(3) The apparent independence of the perceptual and productive modalities in the interpretation of alien target language phonemes is not readily accommodated either by contrastive theory or general theories of language structure.
(4) Different phonemic theories yielded different predictions; none, including the one utilized in the study, satisfactorily predicted or accounted for interference patterns as complex as those disclosed, despite the elimination of the influence of non-phonological factors.
(5) Predictions were normally very ambiguous. Only the Jakobsonian framework yielded explicit predictions, and they were, in general, erroneous.
(6) Formulations like those of Martinet, Jakobson, and Chomsky-Halle, which posit a close relationship between palatal stops and other lingual stops, received no support from the test results despite the fact that locus confusions were not rare.
(7) The structuralist notion of symmetrical patterning received some support from parallel interpretations of the interdentals on perception and production tests, but on the imitation test, interpretations of the tense and lax phonemes differed radically (see above).
(8) Comparison of the distributional rules in the two languages favored as many *in*correct as correct predictions, and error rates were no higher in *un*-familiar than in familiar contexts.
(9) Error rates overall were far lower than anticipated. The subject whose knowledge of English was most rudimentary and whose productive system did not include the interdentals, perceived these phonemes as distinct categories in the majority of his responses.
(10) Finally, the extremely low error rate in the interpretation of English stops suggests that a re-appraisal of the tense/lax and voiceless/voiced categories in the two languages, and perhaps in other languages as well, might reveal basic similarities between them. These results also appear pertinent to the long-standing controversy regarding the relative merits, in contrastive research, of phonetic formulations of phonological systems (see Haugen 1954; Brière 1966) versus relational-structural formulations (see Weinreich 1953),[1] offering some support to the latter position.

The author is sharply critical of certain earlier experimental studies which, he contends, circularly propose as predictions based on contrastive analysis what are actually *ex post facto* formulations based on prior observation of interference data. He attributes the current ineffectuality of contrastive principles in part to over-literal attempts to extrapolate from

[1] See also Weinreich (1957), for a modification of his earlier position, Bańczerowski (1967) for additional pertinent experimental data; and Nemser (1971a), pp. 8–11, for a general presentation of the problem as discussed in Weinreich and Haugen.

linguistic formulations to language-learning behavior, and to the misleading identification of the processes of language convergence, or acquisition on the community level (where far greater regularity is to be anticipated in identifications between phoneme categories) and foreign language learning, or acquisition on the individual level.

In order to account for differences between the perceptual and productive interpretation of target language phonemic categories, he proposes a hypothesis of elliptical perception permitting the dissociation of perceptual and productive base-language categories. His findings also suggested the usefulness of investigating learner behavior on its own terms as a „vector system" intermediate between the base and target languages.[1]

2.3 The Nemser-Juhasz volume containing the contrastive analysis of the phonological systems of English and Hungarian (1.4 above) also presented a general theoretical discussion of language contact, in both linguistic convergence and language acquisition. The notion of a „learner idiom" (or „approximative system" or „interlanguage" as it was later designated), was elaborated in some detail. According to this concept, a foreign language learner in the process of language acquisition develops a linked series of language systems intermediate between his base and target systems, reflecting transitional stages in his growing competence in the target language.[2] The same volume describes a preliminary attempt to validate the approximative system hypothesis. Experimental techniques and standard field-method procedures of descriptive linguistics were utilized to investigate the phonological characteristics of the English speech of a native speaker of Hungarian as a *sui generis* system.

Attention was focused on aspects of English phonology exhibiting more highly differentiated structuring than their Hungarian counterparts and hence representing a likely source of interference through under-differentiation. Such aspects included aperture distinctions among the vowels, distinctions between simple and complex vocalic nuclei, between apical obstruents (/s, z, t, d/) and the interdental fricatives (/θ, ð/), and between the labial semi-vowel (/w/) and the labial fricatives (/f, v/), and consonants with syllabic function (/r̩/, /l̩/, /n̩/).

Roughly 200 test sentences were constructed and translated into Hungarian for retranslation by the subject into English. A supplementary technique, employed where limitations on the subject's knowledge of English

[1] The term „vector system" was proposed in 1961 by John Lotz, who later also suggested the replacement „approximative system" (private communications).

[2] For recent discussions of the hypothesis, see S. P. Corder (1971) and William Nemser (1971); see also 2.3 below.

prevented the use of retranslation, was to offer a rendition of the English utterance as a model for imitation.

A single subject was employed. She had recently arrived in the United States from Hungary with a minimal knowledge of English, but had participated in an intensive course in English for a period of sixteen weeks prior to the experiment.

The responses of the subject were recorded on magnetic tape, and then phonetically transcribed and structurally analyzed in accordance with customary procedures of componential analysis.

The analysis of the test data revealed considerable structural fluctuation as well as asymmetries reflecting varying degrees of evolution towards English. For example, the high front vowels /i/ and /ɪ/ (*beat* and *bit*) were only sporadically differentiated – and on the basis of length rather than aperture – while the high back vowels /u/ and /ʊ/ (*Luke* and *look*) were still merged within a single unit, for reasons perhaps including the lower „functional yield" of the distinction. However, the researchers believe that their analysis did reveal a system exhibiting structural independence of the base and target systems and internal coherence. Distinctive components of English and Hungarian recombined to form phonological sub-systems radically differing from those of either language. For example, among the vowels the HE reflex of English /ɔ/ *(bought)* was often opposed to that of English /o/ *(boat)* as diphthong to monophthong – a reversal in the assignment of these features.[1] A mid-central vowel, replicating English /ə/ *(cup)*, was opposed to a low front vowel, representing a merger of English (ɛ) *(bet)* and /æ/ *(bat)*, on the basis of labialization, a feature not combining with central tongue position in Hungarian. Among the consonants, the reflexes of English /d/ and /ð/ coalesced into a single unit which was opposed to two functionally distinct categories representing English /θ/ and /t/. The tripartite division which was beginning to emerge among the reflexes of English /w/, /v/ and /f/ was apparently describable only in terms of degrees of fricativity.

The authors recommend a program of further research to include observation of approximative systems at various stages of language acquisition, of the systems of students exposed to different pedagogical approaches, with an aim of evaluating their relative effectiveness, and of systems transitional

[1] An analysis in terms of alternating rather invariant distinctive properties was sometimes necessary: thus HE (ɔ) was distinctively characterized *vis-à-vis* (o) as either diphthongal or centralized.

between a variety of base and target languages, permitting the formulation o generalizations about such systems.[1]

2.4 The final work to be discussed in this survey is Paul Huba Madarasz's *Contrastive linguistic analysis and error analysis in learning English and Hungarian* (1968). This book-length monograph, submitted as a doctoral dissertation, represents a contribution both to Hungarian-English contrastive studies, and to the field of contrastive linguistics. As is characteristic of most contrastive research having significant theoretical interest, the aims of Madarasz's study are practical: to provide the basis for the development of more effective pedagogical materials. Madarasz himself is a teacher of Hungarian to English speakers with probably unexampled experience in the development of Hungarian courses for English learners. The title of his work is perhaps over-comprehensive since he concentrates understandably on learning problems in the direction of Hungarian.

Specifically, Madarasz sought a more accurate quantification of learnin difficulties by confronting a numerical assessment of such difficulties based on a contrastive analysis of English and Hungarian with quantitative data derived from the analysis of English-speaking learners of Hungarian.

The experiment design called for (a) the establishment of a „scale of predicted level of difficulty" reflecting degrees of typological distance between a set of Hungarian target elements and their English counterparts;[2] and (b) the construction of two batteries of tests, the first for administratio immediately after presentation of the target elements to learners, and the second at the conclusion of the entire course. The two chronologically-spaced test batteries are intended to afford a diachronic perspective on the learning process.[3] Learning was still incomplete when the initial tests were administered, and the administration of the second tests permitted observation of the completion of the learning process, the long-range retention of acquired skills, and the integration of this particular learning task within the total learning process.

[1] Unpublished research on the same subject's grammatical system suggested the existence of analogous tendencies towards structural cohesiveness and independence. See Nemser and Slama-Cazacu (1971), and Nemser and Dezső (forthcoming) for elaboration of the recommendations for future research.

[2] For an earlier attempt to construct a grammatical „hierarchy of difficulty", see Stockwell, Bowen and Martin (1965), pp. 282–291.

[3] Since most error analyses have been confined to observation of a single „transverse section" of the learning process, the insight provided into the process has been limited. Earlier examples of „longitudinal" studies include Politzer (1961) and Brière (1966).

Two hypotheses are proposed: (a) that the order of error frequencies on the first test will be determined by the degree of typological dissimilarity between the systems as revealed by contrastive analysis, and (b) that the same order of frequency will prevail on the initial and final tests.

Underlying the construction of the „scale of predicted levels of difficulty" is the assumption that

> ...there is a direct though subtle relationship between the number of elements to be learned and the difficulty level of the learning task. In other words, the more numerous the learning steps, the greater the difficulties students may experience (Madarasz 1968, p. 56).

The learning task selected was the acquisition of Hungarian possessive constructions by English-speaking learners. Twenty-five kinds of possessive phrases, including fourteen learning items on the morphemic level, were distributed among six levels of difficulty extending from „only minor learning difficulty" to serious learning problems, as illustrated below:

1. same device (suffixation), same location (possessor), different form (i.e. phonetic shape)

   H: *A kalap János-é*
   a diák-ok szobá-ja

   E: *That hat is John's*
   the students' room

2. same device, complicating factors
   a. different distribution

   H: *János kalap-ja*

   E: *John's hat*

   b. different function

   H: *Ez az én kabát-o-m.*

   E: *This is my coat.*

3. different device, different location
   a. stem ending in a consonant

   H: *a kabát-o-m*
   a diák toll-a

   E: *my coat*
   the student's pen

   b. stem ending in a vowel

   H: *az autó-m*

   E: *my auto*

4. same device, different set (of plural suffixes)

H: *a katoná-i-m* E: *my soldiers*

5. no correspondence

a. definite article in Hungarian, zero in English

H: *(Ez) a toll-a-m.* E: *(This is) ___ my pen.*
A ház az enyém. *The house is ___ mine.*

b. simple change in stem vowel in Hungarian, no change in English

H: *az iskolá-m* < a E: *my school*
a csészé-m < e *my cup*
a madar-a-m < á *my bird*

6. irregularities in Hungarian

a. irregular (i.e. singular) forms of emphatic possession

H: *a maguk ház-a* E: *your (pl.) house*
az ő ház-uk *their house*

b. compulsory use of *-nak/-nek*

H: *Ki-nek a leány-a ő?* E: *Whose daughter is she?*

c. use of *-j-*

H: *a kabát-j-a* E: *his coat*
az ebéd-j-ü-k *their dinner*

d. complex change in Hungarian stem, no change in English

H: *az erde-je* < ő E: *his wood*
a lo-v-a < ó *his horse*

Both initial and final tests measured proficiency in four skill areas: aural comprehension, reading (and limited production), oral production, and translation. Testing techniques for the bulk of the test items called for the addition of suffixal endings and other fill-in tasks, the transformation of

structures from possessive to non-possessive types, response to pictures eliciting possessive phrases, and so on.

The test population varied between 34 and 36. Subjects were students in the intensive language program of the Hungarian Department at the Defense Language Institute, West Coast Branch, Monterey, California, a program of 47 weeks duration with six hours of classroom instruction and an estimated three hours of homework per day. The methodological approach is described as „audio-lingual, associative-inductive, direct." The initial test battery was administered in the eighth week of the course following nine hours of exposure (six in class, three at home) to the possessive structures in question, the final battery at the conclusion of the course.

In explicit form, the first hypothesis stated that for the initial test

> ...the order of error frequencies of the twenty-five kinds of possessive expressions in Hungarian will be determined by the degree of similarity to English possessive rules as shown by contrastive linguistic analysis (Madarasz 1968, p. 18).

This hypothesis was not validated: predictions as to the order of learning difficulty showed no correlation with the order established on the basis of scores on the initial test. However, following a refinement of the scale of difficulty to include the more numerous gradations suggested by the test results, a positive correlation became apparent at the *segmental* or morphemic level, i.e. that of individual learning items (single possessive endings, the use of an article, etc.), as opposed to the *phrase-structure* level, i.e. that of possessive constructions including word sequences.

The second hypothesis, that in the results of the final test „the same order of [error] frequency will prevail as on the initial test" (Madarasz 1968, p. 18), was validated since positive correlations were revealed between the initial and final order of difficulty established on the basis of error scores (p. 204). That is, the relative difficulty of items tended to remain constant throughout the learning process.

Disappointed predictions based on contrastive analysis included both underestimation and overestimation of learning difficulties. Among the underestimated problems were the genitive suffix *-é* (category 1. above), the possessive suffix following a stem ending in a vowel (3.b), and the regular plural suffix to indicate plural possession (1.). Negligible differences in learning difficulty were found between simple morphophonemic changes in the stem 5.b) and complex changes (6.d). On the other hand, the dative *-nak/-nek* (6.b), and *-j-* (6.c) were less formidable problems than had been anticipated.

Madarasz finds an explanation for the underestimation of certain of the learning problems in the overgeneralization of earlier-acquired patterns, i.e. what has been described above as transfer from an earlier approximative

stage. Examples are the frequent renditions in his data of forms like *Ez a kalap János-é* 'This is John's hat' as *...János-nak* or *...János-ja*, and of forms like *az autó-m* 'my car' and *az autó-nk* 'our car' as *az autó-ja-m* and *az autó-ju-nk* respectively.

He also blames flaws in the design of the experiment for many of the radical discrepancies between the predictions and the data. Among them are errors in the assessment of difficulties at the segmental level which are magnified at the phrase-structure level, and the crudity of the six-point scale which forced into the same category structural items posing very different degrees of learning difficulty.

On the basis of an item-by-item analysis, Madarasz concludes that while contrastive factors are a significant source of learning problems, one which must be taken into consideration in establishing levels of learning difficulty, *non*-contrastive sources which must also be considered are both earlier-acquired elements of the target language and „learning difficulties inherent in the target language", i.e. structural irregularities.

Madarasz concludes that neither contrastive analysis nor error analysis alone can serve the purposes of foreign language pedagogy: they must be employed complementarily. The former approach lends structure to the investigation of the learning problems disclosed by the latter, and provides indispensable insight into the background of these problems:

> While error analysis seems to be a more efficient tool for predicting the learning difficulties accurately and the only means of predicting the degree of difficulty, contrastive linguistic analysis is indispensable in the process of evaluating the predicted difficulties. Thus, these two approaches supplement each other in such a way that employment of both is required in the process of writing a pedagogical grammar (Madarasz 1968, p. 234).

One might question the use of the term „prediction" in so weak a sense. However, Madarasz's study, like others discussed earlier, supports the contention that at this stage in the development of contrastive linguistics the procedures of contrastive analysis and error analysis must complement each other if prediction in a stronger sense is to become a reality. The study also imaginatively illustrates how they can do so.

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Working Papers:

1. JOHN LOTZ: Two Papers on English-Hungarian Contrastive Phonology

2. JOHN LOTZ: Script, Grammar and the Hungarian Writing System

3. WILLIAM NEMSER: Contrastive Research on Hungarian and English in the United States